

# Git Guide

By Vitalii Lazarev

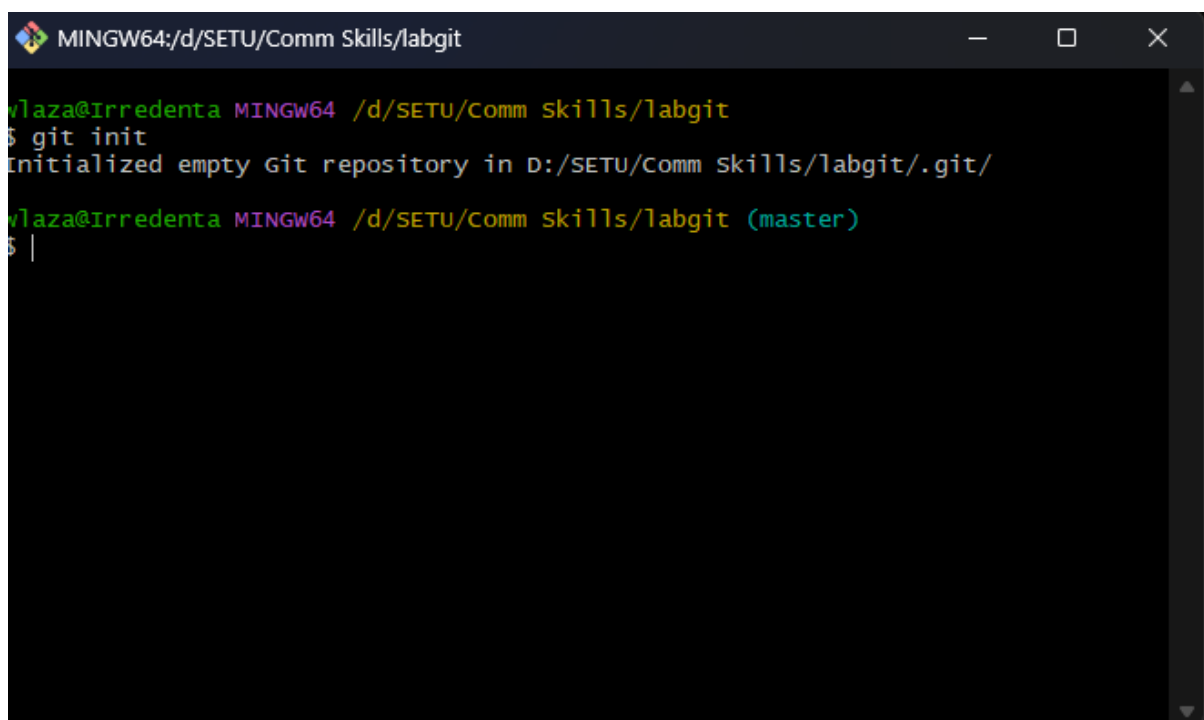
## Step-by-step guide

### 1. Init

#### Example Usage

1. Open Git Bash in your assignment folder.
2. Type “git init” and press Enter.

#### Syntax

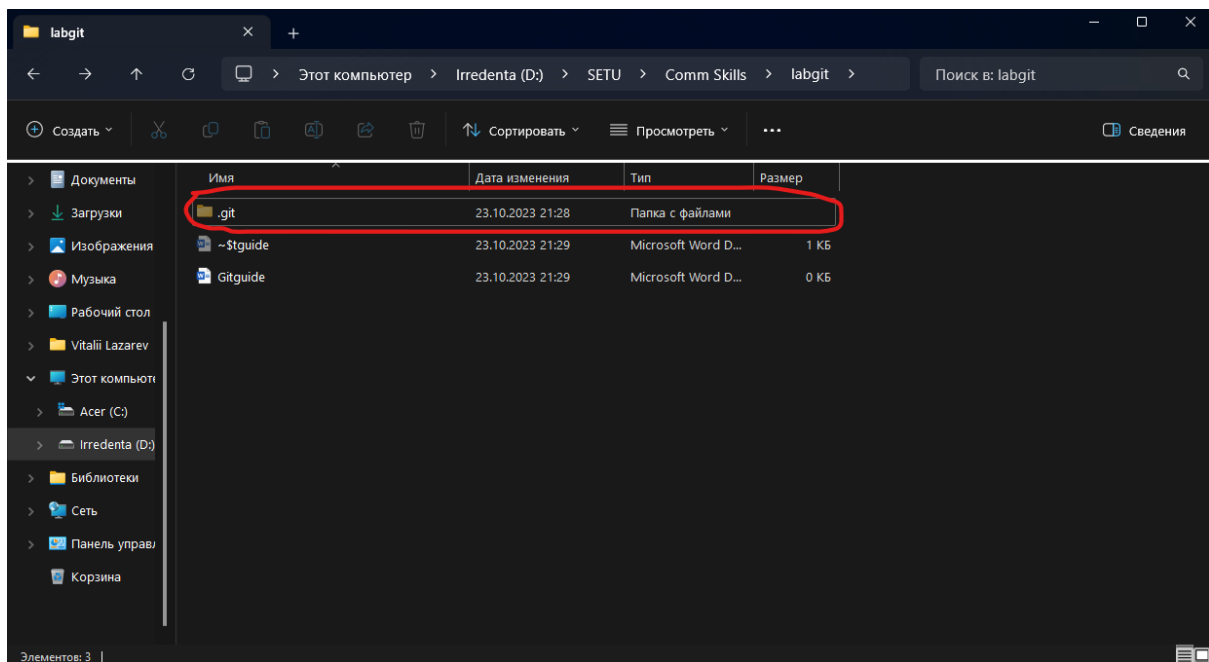
A screenshot of a Windows terminal window titled "MINGW64:/d/SETU/Comm Skills/labgit". The terminal shows a user named "vlaza@Irredenta" in a "MINGW64" environment at the directory "/d/SETU/Comm Skills/labgit". The user enters the command "git init". The terminal output shows "initialized empty Git repository in D:/SETU/Comm Skills/labgit/.git/". Below this, the prompt changes to "vlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)", and the user enters a vertical bar "|" as input.

```
vlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit
$ git init
initialized empty Git repository in D:/SETU/Comm Skills/labgit/.git/

vlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ |
```

#### Explanation

In the current directory, the “git init” command creates a new Git repository from scratch. To keep Git's configuration and history, it generates a hidden folder called “.git”



## 2. Add

### Example Usage

Create a new file gitguide.txt.

Add the file to the staging area using `git add gitguide.txt`.

```
MINGW64/d/SETU/Comm Skills/labgit
your branch is ahead of 'origin/master' by 1 commit.
(use "git push" to publish your local commits)

nothing to commit, working tree clean

wlaza@Irredenta MINGW64 /d/SETU/Comm skills/labgit (master)
$ git add gitguide.txt
fatal: pathspec 'gitguide.txt' did not match any files

wlaza@Irredenta MINGW64 /d/SETU/Comm skills/labgit (master)
$ git add .

wlaza@Irredenta MINGW64 /d/SETU/Comm skills/labgit (master)
$ git add .

wlaza@Irredenta MINGW64 /d/SETU/Comm skills/labgit (master)
$ git status
on branch master
your branch is ahead of 'origin/master' by 1 commit.
(use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   Gitguide.docx

wlaza@Irredenta MINGW64 /d/SETU/Comm skills/labgit (master)
$
```

### 3. Status

Status shows the status of your working directory, including untracked, modified, and staged files.

#### Example

```
MINGW64:/d/SETU/Comm Skills/labgit
wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git push -f origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 16 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (7/7), 88.63 KiB | 29.54 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/PeterLowe/git-one-vitalilazarev.git
+ 2627828...7907ce9 master -> master (forced update)

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git push -u origin master
Everything up-to-date
branch 'master' set up to track 'origin/master'.

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

changes to be committed:
(use "git restore --staged <file>..." to unstage)
    new file:   _$t guide.docx
    new file:   git guide.docx
    new file:   script.txt.txt
```

### 4. Commit

Commit is used to save staged changes with a descriptive message.

**Example:** git commit -m "Commit message"

```
MINGW64:/d/SETU/Comm Skills/labgit
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   Gitguide.docx

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git commit -m "added text for status"
[master 6fc79a7] added text for status
1 file changed, 0 insertions(+), 0 deletions(-)

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git commit -m "added text for commit"
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)

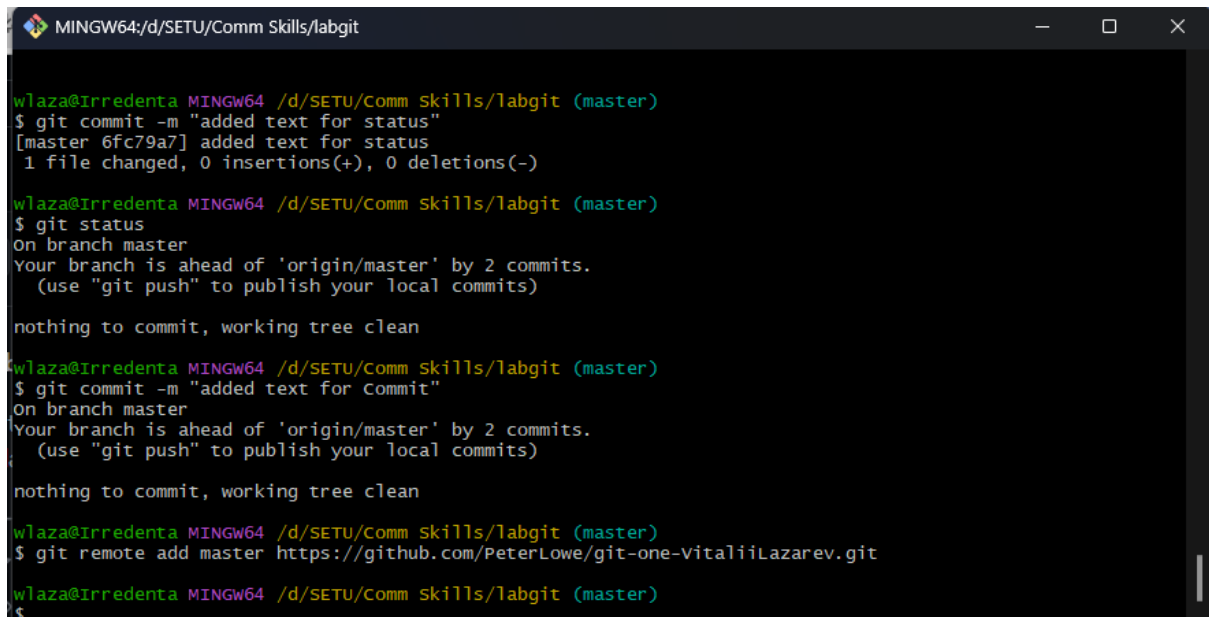
nothing to commit, working tree clean

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$
```

## 5. Remote

Remote helps manage remote repositories.

Example: `git remote add master <repository_url>`

A terminal window titled 'MINGW64:/d/SETU/Comm Skills/labgit' showing a series of git commands and their outputs. The user is in the 'master' branch. They first commit a file with the message 'added text for status'. Then they check the status, which shows they are ahead of 'origin/master' by 2 commits. They commit another file with the message 'added text for commit'. Finally, they add a remote repository named 'master' with the URL 'https://github.com/PeterLowe/git-one-vitaliiLazarev.git'.

```
MINGW64:/d/SETU/Comm Skills/labgit
w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git commit -m "added text for status"
[master 6fc79a7] added text for status
1 file changed, 0 insertions(+), 0 deletions(-)

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git commit -m "added text for commit"
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean

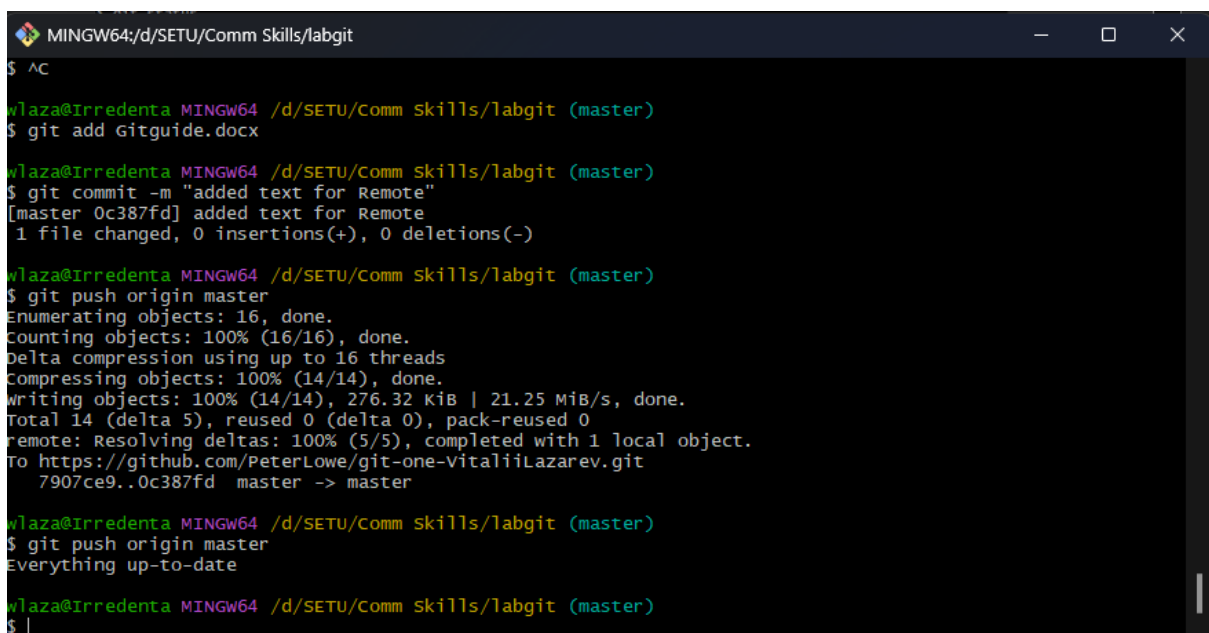
w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git remote add master https://github.com/PeterLowe/git-one-vitaliiLazarev.git

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$
```

## 6. Push

Push is used to upload your local changes to a remote repository.

Example: `git push origin master`

A terminal window titled 'MINGW64:/d/SETU/Comm Skills/labgit' showing a series of git commands and their outputs. The user adds a file 'Gitguide.docx' and commits it with the message 'added text for Remote'. Then they push the changes to the 'origin' remote. The push is successful, and the remote repository is updated. Finally, they push again, which shows 'everything up-to-date'.

```
MINGW64:/d/SETU/Comm Skills/labgit
$ AC

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git add Gitguide.docx

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git commit -m "added text for Remote"
[master 0c387fd] added text for Remote
1 file changed, 0 insertions(+), 0 deletions(-)

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git push origin master
Enumerating objects: 16, done.
counting objects: 100% (16/16), done.
Delta compression using up to 16 threads
compressing objects: 100% (14/14), done.
writing objects: 100% (14/14), 276.32 KiB | 21.25 MiB/s, done.
Total 14 (delta 5), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (5/5), completed with 1 local object.
To https://github.com/PeterLowe/git-one-vitaliiLazarev.git
7907ce9..0c387fd master -> master

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git push origin master
everything up-to-date

w1aza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$
```

## 7. Branch

Branch creates a new branch for development.

**Example:** git branch new-feature

```
MINGW64:/d/SETU/Comm Skills/labgit
wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git add .

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git commit -m "added text for Push"
error: pathspec 'added text for Push' did not match any file(s) known to git

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git commit -m "added text for Push"
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git push origin master
Everything up-to-date

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ |
```

## 8. Checkout

Checkout switches between branches or commits.

**Example:** git checkout branch-name

```
MINGW64:/d/SETU/Comm Skills/labgit
wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git checkout master
Already on 'master'
Your branch is up to date with 'origin/master'.

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git checkout origin/master
Note: switching to 'origin/master'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -c with the switch command. Example:

    git switch -c <new-branch-name>

or undo this operation with:

    git switch -

Turn off this advice by setting config variable advice.detachedHead to false

HEAD is now at 0c387fd added text for Remote

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit ((0c387fd...))
$ |
```

## 9. Merge

Merge combines changes from one branch into another.

Example: git merge feature-branch

```
MINGW64:/d/SETU/Comm Skills/labgit
HEAD detached at master/master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   Gitguide.docx

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit ((0c387fd...))
$ git commit -m "added text for Push"
[detached HEAD e0bfe2a] added text for Push
1 file changed, 0 insertions(+), 0 deletions(-)

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit ((e0bfe2a...))
$ git add .

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit ((e0bfe2a...))
$ git status
HEAD detached from master/master
nothing to commit, working tree clean

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit ((e0bfe2a...))
$

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit ((e0bfe2a...))
$ git merge master
Already up to date.

wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit ((e0bfe2a...))
$
```

## 10. Log

Log shows a history of commits in the repository.

Example: git log

```
MINGW64:/d/SETU/Comm Skills/labgit
wlaza@Irredenta MINGW64 /d/SETU/Comm Skills/labgit (master)
$ git log
commit 2a47bdb905391fca535ace8870294c708c964423 (HEAD -> master, origin/master)
Author: Vitalii Lazarev <wlazareff0@gmail.com>
Date: Mon Oct 23 23:36:10 2023 +0100

    added text for Push

commit 0c387fdb877a329845341c2dcf058589a476cc8 (master/master, new-feature)
Author: Vitalii Lazarev <wlazareff0@gmail.com>
Date: Mon Oct 23 22:56:39 2023 +0100

    added text for Remote

commit 900791d47bdd044246cddb12af3a62732a174d2
Author: Vitalii Lazarev <wlazareff0@gmail.com>
Date: Mon Oct 23 22:55:15 2023 +0100

    added text for Remote

commit 6fc79a72401bd3ca9d14ccd4329c4ff919fae923
Author: Vitalii Lazarev <wlazareff0@gmail.com>
Date: Mon Oct 23 22:50:45 2023 +0100

    added text for status

commit 112b7cdc2060f78c7ff21ffec9e24fd9ea26ea96
Author: Vitalii Lazarev <wlazareff0@gmail.com>
Date: Mon Oct 23 22:46:00 2023 +0100
```

**Last Step**

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